SEQUENCE LISTING

<110> Newell, Martha K.

<120> METHODS AND PRODUCTS RELATED TO
METABOLIC INTERACTIONS IN DISEASE

<130> V0139/7028/HK

<150> U.S. 60/082,250
<151> 1998-04-17

<150> U.S. 60/094,519
<151> 1998-07-29

<150> U.S. 60/101,580
<151> 1998-09-24

<160> 13

<170> FastSEQ for Windows Version 3.0

<210> 1
<211> 1491
<212> DNA
<213> Homo Sapiens

<400> 1

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gtgaaactaa atccacaacc tttggagacc caggaacacc ctccaatctc tgtgtgtttt     180
gtaaacatca ctggagggtc ttctacgtga gcaattggat tgtcatcagc cctgcctgtt     240
ttgcacctgg gaagtgccct ggtcttactt gggtccaaat tgttggcttt cacttttgac     300
cctaagcatc tgaagccatg ggccacacac ggaggcaggg aacatcacca tccaagtgtc     360
catacctcaa tttctttcag ctcttggtgc tggctggtct ttctcacttc tgttcaggtg     420
ttatccacgt gaccaaggaa gtgaaagaag tggcaacgct gtcctgtggt cacaatgttt     480
ctgttgaaga gctggcacaa actcgcatct actggcaaaa ggagaagaaa atggtgctga     540
ctatgatgtc tggggacatg aatatatggc ccgagtacaa gaaccggacc atctttgata     600
tcactaataa cctctccatt gtgatcctgg ctctgcgccc atctgacgag ggcacatacg     660
agtgtgttgt tctgaagtat gaaaaagacg ctttcaagcg ggaacacctg gctgaagtga     720
cgttatcagt caaagctgac ttccctacac ctagtatatc tgactttgaa attccaactt     780
ctaatattag aaggataatt tgctcaacct ctggaggttt tccagagcct cacctctcct     840
ggttggaaaa tggagaagaa ttaaatgcca tcaacacaac agtttcccaa gatcctgaaa     900
ctgagctcta tgctgttagc agcaaactgg atttcaatat gacaaccaac cacagcttca     960
tgtgtctcat caagtatgga catttaagag tgaatcagac cttcaactgg aatacaacca    1020
agcaagagca ttttcctgat aacctgctcc catcctgggc cattacctta atctcagtaa    1080
atggaatttt tgtgatatgc tgcctgacct actgctttgc cccaagatgc agagagagaa    1140
ggaggaatga gagattgaga agggaaagtg tacgccctgt ataacagtgt ccgcagaagc    1200
aaggggctga aaagatctga aggtagcctc cgtcatctct tctgggatac atggatcgtg    1260
gggatcatga ggcattcttc ccttaacaaa tttaagctgt tttacccact acctcacctt    1320
cttaaaaacc tctttcagat taagctgaac agttacaaga tggctggcat ccctctcctt    1380
tctccccata tgcaatttgc ttaatgtaac ctcttctttt gccatgtttc cattctgcca    1440
tcttgaattg tcttgtcagc caattcatta tctattaaac actaatttga g             1491
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<210> 2
<211> 288
<212> PRT
<213> Homo Sapiens

<400> 2

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Met Gly His Thr Arg Arg Gln Gly Thr Ser Pro Ser Lys Cys Pro Tyr
 1               5                  10                  15
Leu Asn Phe Phe Gln Leu Leu Val Leu Ala Gly Leu Ser His Phe Cys
            20                  25                  30
Ser Gly Val Ile His Val Thr Lys Glu Val Lys Glu Val Ala Thr Leu
        35                  40                  45
Ser Cys Gly His Asn Val Ser Val Glu Glu Leu Ala Gln Thr Arg Ile
    50                  55                  60
Tyr Trp Gln Lys Glu Lys Lys Met Val Leu Thr Met Met Ser Gly Asp
65                  70                  75                  80
Met Asn Ile Trp Pro Glu Tyr Lys Asn Arg Thr Ile Phe Asp Ile Thr
                85                  90                  95
Asn Asn Leu Ser Ile Val Ile Leu Ala Leu Arg Pro Ser Asp Glu Gly
            100                 105                 110
Thr Tyr Glu Cys Val Val Leu Lys Tyr Glu Lys Asp Ala Phe Lys Arg
        115                 120                 125
Glu His Leu Ala Glu Val Thr Leu Ser Val Lys Ala Asp Phe Pro Thr
    130                 135                 140
Pro Ser Ile Ser Asp Phe Glu Ile Pro Thr Ser Asn Ile Arg Arg Ile
145                 150                 155                 160
Ile Cys Ser Thr Ser Gly Gly Phe Pro Glu Pro His Leu Ser Trp Leu
                165                 170                 175
Glu Asn Gly Glu Glu Leu Asn Ala Ile Asn Thr Thr Val Ser Gln Asp
            180                 185                 190
Pro Glu Thr Glu Leu Tyr Ala Val Ser Ser Lys Leu Asp Phe Asn Met
        195                 200                 205
Thr Thr Asn His Ser Phe Met Cys Leu Ile Lys Tyr Gly His Leu Arg
    210                 215                 220
Val Asn Gln Thr Phe Asn Trp Asn Thr Thr Lys Gln Glu His Phe Pro
225                 230                 235                 240
Asp Asn Leu Leu Pro Ser Trp Ala Ile Thr Leu Ile Ser Val Asn Gly
                245                 250                 255
Ile Phe Val Ile Cys Cys Leu Thr Tyr Cys Phe Ala Pro Arg Cys Arg
            260                 265                 270
Glu Arg Arg Arg Asn Glu Arg Leu Arg Arg Glu Ser Val Arg Pro Val
        275                 280                 285
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<210> 3
<211> 1424
<212> DNA
<213> Homo Sapiens

<400> 3

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tgcttctgtg ttccttggga atgctgctgt gcttatgcat ctggtctctt tttggagcta     120
cagtggacag gcatttgtga cagcactatg ggactgagta acattctctt tgtgatggcc     180
ttcctgctct ctggtgctgc tcctctgaag attcaagctt atttcaatga gactgcagac     240
ctgccatgcc aatttgcaaa ctctcaaaac caaagcctga gtgagctagt agtattttgg     300
caggaccagg aaaacttggt tctgaatgag gtatacttag gcaaagagaa atttgacagt     360
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gttcattcca agtatatggg ccgcacaagt tttgattcgg acagttggac cctgagactt 420
cacaatcttc agatcaagga caagggcttg tatcaatgta tcatccatca caaaaagccc 480
acaggaatga ttcgcatcca ccagatgaat tctgaactgt cagtgcttgc taacttcagt 540
caacctgaaa tagtaccaat ttctaatata acagaaaatg tgtacataaa tttgacctgc 600
tcatctatac acggttaccc agaacctaag aagatgagtg ttttgctaag aaccaagaat 660
tcaactatcg agtatgatgg tattatgcag aaatctcaag ataatgtcac agaactgtac 720
gacgtttcca tcagcttgtc tgtttcattc cctgatgtta cgagcaatat gaccatcttc 780
tgtattctgg aaactgacaa gacgcggctt ttatcttcac ctttctctat agagcttgag 840
gaccctcagc ctcccccaga ccacattcct tggattacag ctgtacttcc aacagttatt 900
atatgtgtga tggttttctg tctaattcta tggaaatgga agaagaagaa gcggcctcgc 960
aactcttata aatgtggaac caacacaatg gagagggaag agagtgaaca gaccaagaaa 1020
agagaaaaaa tccatatacc tgaaagatct gatgaagccc agcgtgtttt taaaagttcg 1080
aagacatctt catgcgacaa aagtgataca tgtttttaat taaagagtaa agcccataca 1140
agtattcatt ttttctaccc tttcctttgt aagttcctgg gcaacctttt tgatttcttc 1200
cagaaggcaa aaagacatta ccatgagtaa taaggggct ccaggactcc ctctaagtgg 1260
aatagcctcc ctgtaactcc agctctgctc cgtatgccaa gaggagactt taattctctt 1320
actgcttctt ttcacttcag agcacactta tgggccaagc ccagcttaat ggctcatgac 1380
ctggaaataa aatttaggac caataaaaaa aaaaaaaaaa aaaa 1424

<210> 4
<211> 323
<212> PRT
<213> Homo Sapiens

<400> 4

Met Gly Leu Ser Asn Ile Leu Phe Val Met Ala Phe Leu Leu Ser Gly
1 5 10 15
Ala Ala Pro Leu Lys Ile Gln Ala Tyr Phe Asn Glu Thr Ala Asp Leu
20 25 30
Pro Cys Gln Phe Ala Asn Ser Gln Asn Gln Ser Leu Ser Glu Leu Val
35 40 45
Val Phe Trp Gln Asp Gln Glu Asn Leu Val Leu Asn Glu Val Tyr Leu
50 55 60
Gly Lys Glu Lys Phe Asp Ser Val His Ser Lys Tyr Met Gly Arg Thr
65 70 75 80
Ser Phe Asp Ser Asp Ser Trp Thr Leu Arg Leu His Asn Leu Gln Ile
85 90 95
Lys Asp Lys Gly Leu Tyr Gln Cys Ile Ile His His Lys Lys Pro Thr
100 105 110
Gly Met Ile Arg Ile His Gln Met Asn Ser Glu Leu Ser Val Leu Ala
115 120 125
Asn Phe Ser Gln Pro Glu Ile Val Pro Ile Ser Asn Ile Thr Glu Asn
130 135 140
Val Tyr Ile Asn Leu Thr Cys Ser Ser Ile His Gly Tyr Pro Glu Pro
145 150 155 160
Lys Lys Met Ser Val Leu Leu Arg Thr Lys Asn Ser Thr Ile Glu Tyr
165 170 175
Asp Gly Ile Met Gln Lys Ser Gln Asp Asn Val Thr Glu Leu Tyr Asp
180 185 190
Val Ser Ile Ser Leu Ser Val Ser Phe Pro Asp Val Thr Ser Asn Met
195 200 205
Thr Ile Phe Cys Ile Leu Glu Thr Asp Lys Thr Arg Leu Leu Ser Ser
210 215 220
Pro Phe Ser Ile Glu Leu Glu Asp Pro Gln Pro Pro Pro Asp His Ile
225 230 235 240

[redacted]

```
Pro Trp Ile Thr Ala Val Leu Pro Thr Val Ile Ile Cys Val Met Val
                245                 250                 255
Phe Cys Leu Ile Leu Trp Lys Trp Lys Lys Lys Lys Arg Pro Arg Asn
            260                 265                 270
Ser Tyr Lys Cys Gly Thr Asn Thr Met Glu Arg Glu Glu Ser Glu Gln
        275                 280                 285
Thr Lys Lys Arg Glu Lys Ile His Ile Pro Glu Arg Ser Asp Glu Ala
    290                 295                 300
Gln Arg Val Phe Lys Ser Ser Lys Thr Ser Ser Cys Asp Lys Ser Asp
305                 310                 315                 320
Thr Cys Phe
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<210> 5
<211> 924
<212> DNA
<213> Homo Sapiens

<400> 5

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atgggggccc tgacagcctc ggacgtacac ccgaccctgg gggtccagct cttctcagct      60
ggaatagcgg cgtgcttggc ggacgtgatc accttcccgc tggacacggc caaagtccgg     120
ctccaggtcc aaggtgaatg cccgacgtcc agtgttatta ggtataaagg tgtcctggga     180
acaatcaccg ctgtggtaaa aacagaaggg cggatgaaac tctacagcgg gctgcctgcg     240
gggcttcagc ggcaaatcag ctccgcctct ctcaggatcg gcctctacga cacggtccag     300
gagttcctca ccgcagggaa agaaacagca cctagtttag gaagcaagat tttagctggt     360
ctaacgactg gaggagtggc agtattcatt gggcaaccca cagaggtcgt gaaagtcaga     420
cttcaagcac agagccatct ccacggaatc aaacctcgct acacggggac ttataatgcg     480
tacagaataa tagcaacaac cgaaggcttg acgggtcttt ggaaagggac tactcccaat     540
ctgatgagaa gtgtcatcat caattgtaca gagctagtaa catatgatct aatgaaggag     600
gcctttgtga aaaacaacat attagcagat gacgtcccct gccacttggt gtcggctctt     660
atcgctggat tttgcgcaac agctatgtcc tccccggtgg atgtagtaaa aaccagattt     720
attaattctc caccaggaca gtacaaaagt gtgcccaact gtgcaatgaa agtgttcact     780
aacgaaggac caacggcttt cttcaagggg ttggtacctt ccttcttgcg acttggatcc     840
tggaacgtca ttatgtttgt gtgctttgaa caactgaaac gagaactgtc aaagtcaagg     900
cagactatgg actgtgccac ataa                                           924
```

<210> 6
<211> 307
<212> PRT
<213> Homo Sapiens

<400> 6

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Met Gly Gly Leu Thr Ala Ser Asp Val His Pro Thr Leu Gly Val Gln
 1               5                  10                  15
Leu Phe Ser Ala Gly Ile Ala Ala Cys Leu Ala Asp Val Ile Thr Phe
            20                  25                  30
Pro Leu Asp Thr Ala Lys Val Arg Leu Gln Val Gln Gly Glu Cys Pro
        35                  40                  45
Thr Ser Ser Val Ile Arg Tyr Lys Gly Val Leu Gly Thr Ile Thr Ala
    50                  55                  60
Val Val Lys Thr Glu Gly Arg Met Lys Leu Tyr Ser Gly Leu Pro Ala
65                  70                  75                  80
Gly Leu Gln Arg Gln Ile Ser Ser Ala Ser Leu Arg Ile Gly Leu Tyr
                85                  90                  95
Asp Thr Val Gln Glu Phe Leu Thr Ala Gly Lys Glu Thr Ala Pro Ser
```

```
            100                 105                 110
Leu Gly Ser Lys Ile Leu Ala Gly Leu Thr Thr Gly Gly Val Ala Val
        115                 120                 125
Phe Ile Gly Gln Pro Thr Glu Val Val Lys Val Arg Leu Gln Ala Gln
    130                 135                 140
Ser His Leu His Gly Ile Lys Pro Arg Tyr Thr Gly Thr Tyr Asn Ala
145                 150                 155                 160
Tyr Arg Ile Ile Ala Thr Thr Glu Gly Leu Thr Gly Leu Trp Lys Gly
                165                 170                 175
Thr Thr Pro Asn Leu Met Arg Ser Val Ile Ile Asn Cys Thr Glu Leu
            180                 185                 190
Val Thr Tyr Asp Leu Met Lys Glu Ala Phe Val Lys Asn Asn Ile Leu
        195                 200                 205
Ala Asp Asp Val Pro Cys His Leu Val Ser Ala Leu Ile Ala Gly Phe
    210                 215                 220
Cys Ala Thr Ala Met Ser Ser Pro Val Asp Val Val Lys Thr Arg Phe
225                 230                 235                 240
Ile Asn Ser Pro Pro Gly Gln Tyr Lys Ser Val Pro Asn Cys Ala Met
                245                 250                 255
Lys Val Phe Thr Asn Glu Gly Pro Thr Ala Phe Phe Lys Gly Leu Val
            260                 265                 270
Pro Ser Phe Leu Arg Leu Gly Ser Trp Asn Val Ile Met Phe Val Cys
        275                 280                 285
Phe Glu Gln Leu Lys Arg Glu Leu Ser Lys Ser Arg Gln Thr Met Asp
    290                 295                 300
Cys Ala Thr
305
```

<210> 7
<211> 1105
<212> DNA
<213> Homo Sapiens

<400> 7

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tcctgggacg tagcaggaaa tcagcatcat ggttgggttc aaggccacag atgtgccccc     120
tactgccact gtgaagtttc ttggggctgg cacagctgcc tgcatcgcag atctcatcac     180
ctttcctctg gatactgcta aagtccggtt acagatccaa ggagaaagtc aggggccagt     240
gcgcgctaca gccagcgccc agtaccgcgg tgtgatgggc accattctga ccatggtgcg     300
tactgagggc ccccgaagcc tctacaatgg gctggttgcc ggcctgcagc gccaaatgag     360
ctttgcctct gtccgcatcg gcctgtatga ttctgtcaaa cagttctaca ccaagggctc     420
tgagcatgcc agcattggga gccgcctcct agcaggcagc accacaggtg ccctggctgt     480
ggctgtggcc cagcccacgg atgtggtaaa ggtccgattc caagctcagg cccgggctgg     540
aggtggtcgg agataccaaa gcaccgtcaa tgcctacaag accattgccc gagaggaagg     600
gttccggggc ctctggaaag ggacctctcc caatgttgct cgtaatgcca ttgtcaactg     660
tgctgagctg gtgacctatg acctcatcaa ggatgccctc ctgaaagcca acctcatgac     720
agatgacctc ccttgccact tcacttctgc ctttggggca ggcttctgca ccactgtcat     780
cgcctccccc gtagacgtgg tcaagacgag atacatgaac tctgccctgg gccagtacag     840
tagcgctggc cactgtgccc ttaccatgct ccagaaggag gggccccgag ccttctacaa     900
agggttcatg ccctcctttc tccgcttggg ttcctggaac gtggtgatgt tcgtcaccta     960
tgagcagctg aaacgagccc tcatggctgc ctgcacttcc cgagaggctc ccttctgagc    1020
ctctcctgct gctgacctga tcacctctgg ctttgtctct agccgggcca tgctttcctt    1080
ttcttccttc tttctcttcc ctccg                                         1105
```

<210> 8

<211> 309
<212> PRT
<213> Homo Sapiens

<400> 8

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Met Val Gly Phe Lys Ala Thr Asp Val Pro Pro Thr Ala Thr Val Lys
 1               5                  10                  15
Phe Leu Gly Ala Gly Thr Ala Ala Cys Ile Ala Asp Leu Ile Thr Phe
            20                  25                  30
Pro Leu Asp Thr Ala Lys Val Arg Leu Gln Ile Gln Gly Glu Ser Gln
        35                  40                  45
Gly Pro Val Arg Ala Thr Ala Ser Ala Gln Tyr Arg Gly Val Met Gly
    50                  55                  60
Thr Ile Leu Thr Met Val Arg Thr Glu Gly Pro Arg Ser Leu Tyr Asn
65                  70                  75                  80
Gly Leu Val Ala Gly Leu Gln Arg Gln Met Ser Phe Ala Ser Val Arg
                85                  90                  95
Ile Gly Leu Tyr Asp Ser Val Lys Gln Phe Tyr Thr Lys Gly Ser Glu
            100                 105                 110
His Ala Ser Ile Gly Ser Arg Leu Leu Ala Gly Ser Thr Thr Gly Ala
        115                 120                 125
Leu Ala Val Ala Val Ala Gln Pro Thr Asp Val Val Lys Val Arg Phe
    130                 135                 140
Gln Ala Gln Ala Arg Ala Gly Gly Gly Arg Arg Tyr Gln Ser Thr Val
145                 150                 155                 160
Asn Ala Tyr Lys Thr Ile Ala Arg Glu Glu Gly Phe Arg Gly Leu Trp
                165                 170                 175
Lys Gly Thr Ser Pro Asn Val Ala Arg Asn Ala Ile Val Asn Cys Ala
            180                 185                 190
Glu Leu Val Thr Tyr Asp Leu Ile Lys Asp Ala Leu Leu Lys Ala Asn
        195                 200                 205
Leu Met Thr Asp Asp Leu Pro Cys His Phe Thr Ser Ala Phe Gly Ala
    210                 215                 220
Gly Phe Cys Thr Thr Val Ile Ala Ser Pro Val Asp Val Val Lys Thr
225                 230                 235                 240
Arg Tyr Met Asn Ser Ala Leu Gly Gln Tyr Ser Ser Ala Gly His Cys
                245                 250                 255
Ala Leu Thr Met Leu Gln Lys Glu Gly Pro Arg Ala Phe Tyr Lys Gly
            260                 265                 270
Phe Met Pro Ser Phe Leu Arg Leu Gly Ser Trp Asn Val Val Met Phe
        275                 280                 285
Val Thr Tyr Glu Gln Leu Lys Arg Ala Leu Met Ala Ala Cys Thr Ser
    290                 295                 300
Arg Glu Ala Pro Phe
305
```

<210> 9
<211> 1132
<212> DNA
<213> Homo Sapiens

<400> 9

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tcctgggatg gagccctagg gagcccctgt gctgcccctg ccgtggcagg actcacagcc      60
ccaccgctgc actgaagccc agggctgtgg agcagcctct ctccttggac ctcctctcgg     120
ccctaaaggg actgggcaga gccttccagg actatggttg gactgaagcc ttcagacgtg     180
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cctcccacca tggctgtgaa gttcctgggg gcaggcacag cagcctgttt tgctgacctc 240
gttacctttc cactggacac agccaaggtc cgcctgcaga tccaggggga gaaccaggcg 300
gtccagacgg cccggctcgt gcagtaccgt ggcgtgctgg gcaccatcct gaccatggtg 360
cggactgagg gtccctgcag cccctacaat gggctggtgg ccggcctgca gcgccagatg 420
agcttcgcct ccatccgcat cggcctctat gactccgtca agcaggtgta cacccccaaa 480
ggcgcggaca actccagcct cactacccgg attttggccg gctgcaccac aggagccatg 540
gcggtgacct gtgcccagcc cacagatgtg gtgaaggtcc gatttcaggc cagcatacac 600
ctcgggccat ccaggagcga cagaaaatac agcgggacta tggacgccta cagaaccatc 660
gccagggagg aaggagtcag gggcctgtgg aaaggaactt tgcccaacat catgaggaat 720
gctatcgtca actgtgctga ggtggtgacc tacgacatcc tcaaggagaa gctgctggac 780
taccacctgc tcactgacaa cttcccctgc cactttgtct ctgcctttgg agccggcttc 840
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ccaggccagt acttcagccc cctcgactgt atgataaaga tggtggccca ggagggcccc 960
acagccttct acaaggggtg agcctcctcc tgcctccagc actcctccc agagaacagg 1020
ggcttctttc ttttcgaatg tggctaccgt gggtcaacct gggatgtagc ggtgaagagt 1080
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<210> 10
<211> 275
<212> PRT
<213> Homo Sapiens

<400> 10

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Met Val Gly Leu Lys Pro Ser Asp Val Pro Pro Thr Met Ala Val Lys
 1               5                  10                  15
Phe Leu Gly Ala Gly Thr Ala Ala Cys Phe Ala Asp Leu Val Thr Phe
            20                  25                  30
Pro Leu Asp Thr Ala Lys Val Arg Leu Gln Ile Gln Gly Glu Asn Gln
        35                  40                  45
Ala Val Gln Thr Ala Arg Leu Val Gln Tyr Arg Gly Val Leu Gly Thr
    50                  55                  60
Ile Leu Thr Met Val Arg Thr Glu Gly Pro Cys Ser Pro Tyr Asn Gly
65                  70                  75                  80
Leu Val Ala Gly Leu Gln Arg Gln Met Ser Phe Ala Ser Ile Arg Ile
                85                  90                  95
Gly Leu Tyr Asp Ser Val Lys Gln Val Tyr Thr Pro Lys Gly Ala Asp
            100                 105                 110
Asn Ser Ser Leu Thr Thr Arg Ile Leu Ala Gly Cys Thr Thr Gly Ala
        115                 120                 125
Met Ala Val Thr Cys Ala Gln Pro Thr Asp Val Val Lys Val Arg Phe
    130                 135                 140
Gln Ala Ser Ile His Leu Gly Pro Ser Arg Ser Asp Arg Lys Tyr Ser
145                 150                 155                 160
Gly Thr Met Asp Ala Tyr Arg Thr Ile Ala Arg Glu Glu Gly Val Arg
                165                 170                 175
Gly Leu Trp Lys Gly Thr Leu Pro Asn Ile Met Arg Asn Ala Ile Val
            180                 185                 190
Asn Cys Ala Glu Val Val Thr Tyr Asp Ile Leu Lys Glu Lys Leu Leu
        195                 200                 205
Asp Tyr His Leu Leu Thr Asp Asn Phe Pro Cys His Phe Val Ser Ala
    210                 215                 220
Phe Gly Ala Gly Phe Cys Ala Thr Val Val Ala Ser Pro Val Asp Val
225                 230                 235                 240
Val Lys Thr Arg Tyr Met Asn Ser Pro Pro Gly Gln Tyr Phe Ser Pro
                245                 250                 255
```

Leu Asp Cys Met Ile Lys Met Val Ala Gln Glu Gly Pro Thr Ala Phe
260 265 270
Tyr Lys Gly
275

<210> 11
<211> 1514
<212> DNA
<213> Homo Sapiens

<400> 11
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gaggaggggc tggaacccta gcccatcgtc aggacaaaga tgctcaggct gctcttggct 120
ctcaacttat tcccttcaat tcaagtaaca ggaaacaaga ttttggtgaa gcagtcgccc 180
atgcttgtag cgtacgacaa tgcggtcaac cttagctgca agtattccta caatctcttc 240
tcaagggagt tccgggcatc ccttcacaaa ggactggata gtgctgtgga agtctgtgtt 300
gtatatggga attactccca gcagcttcag gtttactcaa aaacggggtt caactgtgat 360
gggaaattgg gcaatgaatc agtgacattc tacctccaga atttgtatgt taaccaaaca 420
gatatttact tctgcaaaat tgaagttatg tatcctcctc cttacctaga caatgagaag 480
agcaatggaa ccattatcca tgtgaaaggg aaacaccttt gtccaagtcc cctatttccc 540
ggaccttcta agccctttg ggtgctggtg gtggttggtg gagtcctggc ttgctatagc 600
ttgctagtaa cagtggcctt tattattttc tgggtgagga gtaagaggag caggctcctg 660
cacagtgact acatgaacat gactccccgc cgccccgggc ccacccgcaa gcattaccag 720
ccctatgccc caccacgcga cttcgcagcc tatcgctcct gacacggacg cctatccaga 780
agccagccgg ctggcagccc ccatctgctc aatatcactg ctctggatag gaaatgaccg 840
ccatctccag ccggccacct cagcccctgt tgggccacca atgccaattt ttctcgagtg 900
actagaccaa atatcaagat cattttgaga ctctgaaatg aagtaaaaga gatttcctgt 960
gacaggccaa gtcttacagt gccatggccc acattccaac ttaccatgta cttagtgact 1020
tgactgagaa gttagggtag aaaacaaaaa gggagtggat tctgggagcc tcttcccttt 1080
ctcactcacc tgcacatctc agtcaagcaa agtgtggtat ccacagacat tttagttgca 1140
gaagaaaggc taggaaatca ttccttttgg ttaaatgggt gtttaatctt ttggttagtg 1200
ggttaaacgg ggtaagttag agtaggggga gggataggaa gacatattta aaaaccatta 1260
aaacactgtc tcccactcat gaaatgagcc acgtagttcc tatttaatgc tgttttcctt 1320
tagtttagaa atacatagac attgtctttt atgaattctg atcatattta gtcattttga 1380
ccaaatgagg gatttggtca aatgagggat tccctcaaag caatatcagg taaaccaagt 1440
tgctttcctc actccctgtc atgagacttc agtgttaatg ttcacaatat actttcgaaa 1500
gaataaaata gttc 1514

<210> 12
<211> 220
<212> PRT
<213> Homo Sapiens

<400> 12
Met Leu Arg Leu Leu Leu Ala Leu Asn Leu Phe Pro Ser Ile Gln Val
1 5 10 15
Thr Gly Asn Lys Ile Leu Val Lys Gln Ser Pro Met Leu Val Ala Tyr
20 25 30
Asp Asn Ala Val Asn Leu Ser Cys Lys Tyr Ser Tyr Asn Leu Phe Ser
35 40 45
Arg Glu Phe Arg Ala Ser Leu His Lys Gly Leu Asp Ser Ala Val Glu
50 55 60
Val Cys Val Val Tyr Gly Asn Tyr Ser Gln Gln Leu Gln Val Tyr Ser
65 70 75 80
Lys Thr Gly Phe Asn Cys Asp Gly Lys Leu Gly Asn Glu Ser Val Thr

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                85                  90                  95
Phe Tyr Leu Gln Asn Leu Tyr Val Asn Gln Thr Asp Ile Tyr Phe Cys
            100                 105                 110
Lys Ile Glu Val Met Tyr Pro Pro Pro Tyr Leu Asp Asn Glu Lys Ser
        115                 120                 125
Asn Gly Thr Ile Ile His Val Lys Gly Lys His Leu Cys Pro Ser Pro
    130                 135                 140
Leu Phe Pro Gly Pro Ser Lys Pro Phe Trp Val Leu Val Val Val Gly
145                 150                 155                 160
Gly Val Leu Ala Cys Tyr Ser Leu Leu Val Thr Val Ala Phe Ile Ile
                165                 170                 175
Phe Trp Val Arg Ser Lys Arg Ser Arg Leu Leu His Ser Asp Tyr Met
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Asn Met Thr Pro Arg Arg Pro Gly Pro Thr Arg Lys His Tyr Gln Pro
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Tyr Ala Pro Pro Arg Asp Phe Ala Ala Tyr Arg Ser
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Arg His Arg Ser Gln Lys Gly Pro
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